



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region III  
841 Chestnut Street  
Philadelphia, Pennsylvania 19107

March 7, 1995

SUBJECT: Risk-Based Concentration Table, January - June 1995

FROM: Roy L. Smith, Ph.D., Senior Toxicologist  
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TO: RBC Table Mailing List

Attached is the EPA Region III Risk-Based Concentration (RBC) table, which we have distributed quarterly to all interested parties since 1991. Please see below for some important announcements concerning changes in the Table and administrative issues with our mailing list.

*Major Changes in this Issue of the RBC*

1. IRIS and HEAST have matured, and EPA has revised them at a decreasing rate over the last few years. Lately, each quarterly RBC update has been virtually the same as its predecessor. Meanwhile, the mailing list for the RBC table has expanded exponentially and the quarterly mailings have become a substantial burden to the Region. Upon reflection, we've decided to change to semi-annual distribution. We think this change will extend our ability to keep producing the RBC table, while having little effect on the table's usefulness. (For example, there have been *no* changes to toxicity constants in IRIS or HEAST in the three months since the 4th quarter table was published.)
2. The RBC table now includes soil screening levels (SSLs) for protection of groundwater and air. Most of the new entries were taken directly from EPA/OSWER's newly proposed SSL guidance document. We've added some additional SSLs based on the same proposed methodology. Sources of SSLs are noted in the table. SSLs incorporate all the same exposure assumptions as RBCs, plus many additional assumptions needed for inter-media extrapolation. SSLs are therefore distinct from RBCs, and should be used only in the framework proposed in the OSWER document. If you have not yet seen this proposal, you can obtain it from NTIS (703-487-4650, as document numbers 9355.4-1, PB95-963530, or EPA540/R-94/105).

*Administrative Issues*

Our situation on the administrative front can be summarized in one word--"HELP"!! The RBC mailing list now includes more than 1300 recipients and we are experiencing significant problems with our current "delivery system." We would appreciate your suggestions for making our future mailings more efficient. We are also exploring the possibility of providing access to the RBC through an electronic bulletin board and would like your feedback on that idea. In the meantime, we will be examining our current mailing list and limiting future mailings to one individual per organization; we need your help in distributing the RBC within your organization if there are others who would like copies.

EPA Region 5 Records Ctr.



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We have installed a new phone line to help with your questions about the RBC: 215-597-1116. This is Anna Poulton's number and it has a voice-mail system to take your calls if we're not available. Please limit your questions to RBC issues; if you have a question about applying the RBC to a site, please call the EPA Regional office handling the project.

Thanks for your patience and cooperation with these administrative issues!

### *Minor Changes*

1. As many have requested, the soil ingestion rate for commercial/industrial exposure has been revised to include EPA's national default assumption that only 50% of ingested soil is associated with work. The worker soil exposure is now fully consistent with EPA's standard exposure factors for Superfund.
2. Many callers have complained about the lower case 'e' and 'o' notations on the table, which can't be easily distinguished. All such notations have been capitalized.

### *Still the Same*

The table contains reference doses and carcinogenic potency slopes (obtained from IRIS through January 1, 1995, HEAST through March 1994, the Superfund Health Risk Technical Support Center, and other EPA sources) for nearly 600 chemicals. These toxicity constants have been combined with "standard" exposure scenarios to calculate RBCs - chemical concentrations corresponding to fixed levels of risk (*i.e.*, a hazard quotient of 1, or lifetime cancer risk of  $10^{-6}$ , whichever occurs at a lower concentration) in water, air, fish tissue, and soil.

The Region III toxicologists use the table to screen sites not yet on the NPL, respond rapidly to citizen inquiries, and spot-check formal baseline risk assessments. The background materials provide the complete basis for all the calculations, with the intent of showing users exactly how the RBCs were developed. Simply put, RBCs are risk assessments run in reverse. For a single contaminant in a single medium, under standard default exposure assumptions, the RBC corresponds to the target risk or hazard quotient.

The RBCs also have several important limitations. Specifically excluded from consideration are (1) transfers from soil to air and groundwater, and (2) cumulative risk from multiple contaminants or media. Also, the toxicity information in the table has been assembled by hand, and (despite extensive checking and years of use) may contain errors. It's advisable to cross-check before relying on any RfDs or CPSs in the table. If you find any errors, please send me a note.

Many people want to know if the risk-based concentrations can be used as valid no-action levels or cleanup levels, especially for soils. The answer is a bit complex. First, it is important to realize that the RBC table does not constitute regulation or guidance, and should not be viewed as a substitute for a site-specific risk assessment. For sites where:

1. A single medium is contaminated;

2. A single contaminant contributes nearly all of the health risk;
3. Volatilization or leaching of that contaminant from soil is expected not to be significant;
4. The exposure scenarios used in the RBC table are appropriate for the site;
5. The fixed risk levels used in the RBC table are appropriate for the site; and
6. Risk to ecological receptors is expected not to be significant;

the risk-based concentrations would probably be protective as no-action levels or cleanup goals. However, to the extent that a site deviates from this description, as most do, the RBCs would not necessarily be appropriate.

*To summarize, the table should generally not be used to (1) set cleanup or no-action levels at CERCLA or RCRA Corrective Action sites, (2) substitute for EPA guidance for preparing baseline risk assessments, or (3) determine if a waste is hazardous under RCRA.*

Attachment